## REMARKS

### Status of the Claims

In the Office Action, claims 1-22 were noted as pending in the application. All claims stand rejected. It is not apparent to Applicant that claim 12 has been rejected, as this claim was not addressed as being rejected in the detailed evaluation sections of the office action. It is noted that on the Office Action Summary sheet Examiner stated that all claims are rejected. Clarification is respectfully requested.

### A. Rejection of Claims 1 and 10 under 35 U.S.C. § 102(e).

On page 2 of the Office Action, claims 1 and 10 stand rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent Number 6,223,222 to Fijolek, *et. al.*, ("Fijolek"). The reasons that the claims patentably distinguish over the reference are addressed below.

### B. Rejection of Claims 2-9, 11 and 13-18 under 35 U.S.C. § 103(a).

Beginning on page 42 of the Office Action, claims 2-9, 11 and 13-18 stand rejected under 35 U.S.C. § 103 as being obvious. The reasons that the claims patentably distinguish over the reference are addressed below.

### C. Summary of Cited References

Before addressing the Examiner's rejections, a brief summary of the cited references is provided.

**Fijolek, *et. al.* - U.S. Patent Number 6,223,222 ("Fijolek")**

Fijolek relates to providing quality-of-service to a cable modem ("CM") from a cable modem termination system ("CMTS") upon a request from the CM to establish a connection with the CMTS. Col. 34, lines 12-37. If the CMTS has enough available bandwidth to accommodate the amount of bandwidth requested by the CM, a connection with the requested amount of bandwidth is established between the CMTS and the CM. Id. If enough bandwidth is not available at the CMTS, the requested quality of service is denied. Id. A quality-of-service ("QoS") server subtracts from a total available bandwidth amount the amount that is allocated when a connection session is established. Col. 36, lines 44-61. When a CM disconnects from a CMTS, the QoS server adds the bandwidth allocated to the CM back to the available amount. Id. When a CM requests more than is available, the server denies a session QoS request.

**Vogel - U.S. Patent Number 6,742,187 ("Vogel")**

Vogel relates to upstream channel change. Col. 4, lines 13-14. An upstream channel change ("UCC") takes longer to complete that the claimed subject matter. Colo. 13, lines 26-30. In the claimed method, a cable modem monitors MAP messages in its current channel and other channels that are carried over a link between a CMTS and a cable modem. When a unicast opportunity is available on one of the other channels, the cable modem shifts is upstream channel to the alternate channel having the available unicast channel. Col. 13, lines 38-50.

**Allen - U.S. Patent Number 6,850,965 ("Allen")**

Allen relates to the delivery of multimedia content over a variety of networks. More specifically, it pertains to multimedia servers which service many clients simultaneously for the delivery of multimedia content which is used and played back at each client. Col. 1, lines 14-18. "In essence, little or no CAC procedure [is] implemented" in efficiently using bandwidth across multiple user connections. Portions of a program are 'burst-transmit[ted]' so that the transmission system "'gets ahead of itself', thus allowing headroom for a myriad of methods to intelligently handle new clients, client interactivity and possible network fluctuations." Col. 3, lines 6-12.

**Yao, *et. al.* - U.S. Patent Number 6,097,697 ("Yao")**

Yao relates to congestion control in a communication network. Col. 2, lines 7-8. A combination of multiple congestion-indicators is used by a congestion control mechanism to control transmission rate. Col. 2, lines 10-13.

**Selinger - U.S. Patent Number 6,345,038 ("Selinger")**

Selinger relates to a system for improving service provided to users requesting service while a predefined congestion limit is being exceeded. Abstract. "The [] invention seeks to alleviate inconveniences to network users caused by the foregoing practice of unconditionally rejecting requests for new or addition access services when traffic at a station receiving such requests is above a defined limit of congestion. Col. 2, lines 44-48. When a user requests service and the system is oversubscribed, all users, including current users, are subject to having their service downgraded. Col. 5, lines 40-43. A routine may be used to provide conditional restoration of service levels for users whose service was downgraded when the last user's session was established. Col. 5, lines 57-58.

**D. The Claims are not anticipated by Fijolek.**

Claim 1 is amended herein to more clearly claim the unambiguously claimed subject matter claimed in the original claim; a change in scope of claim 1 is not intended.

With respect to the subject mater of the claim, claim 1 claims ". . . receiving a request for bandwidth on a cable data system link from a first ISP, wherein the request is made by a requesting subscriber . . ." This representative quote from claim 1 as amended is provided to illustrate that the claim is directed to bandwidth that is available on a link between an ISP and a CMTS. The recitation ". . . links between a cable modem termination system (CMTS) and a plurality of Internet Service Providers (ISP) . . ." in the preamble makes this clear.

Examiner asserts that the claimed features are found in Fijolek, and thus the claim is anticipated. However, as Examiner points out in a page 2 of the office action, " ' FIG. 18 illustrates a QoS server 332 used to determine whether CMTS 12 has available bandwidth to provide a specific quality-of-service request to a CM'." This passage in Fijolek refers to whether there is sufficient bandwidth on Cable Net 14 shown in FIG. 18 to dedicate a given amount of bandwidth to a requesting customer. In further reference to this, Fijolek describes the steps of "receiving a request on a first network device from a second network device to establish a connection between the second network device and a third network device with a specific quality of service." Col. 33, lines 37-41. The first,

second and third network devices correspond to a QoS server, a CMTS and a cable modem, respectively. Col. 33, line 66 – col. 34, line 1.

As these passages make clear, Fijolek discusses bandwidth, and values for other QoS parameters, available on connections between the CMTS and the cable modem, not on the links between one of a plurality of ISPs and a CMTS. Therefore, Fijolek does not disclose the claimed subject matter relating to available bandwidth on a link between an internet service provider and a CMTS, because Fijolek expressly relates to the available bandwidth between the CMTS and the cable modem. Thus, determining the amount of bandwidth on a link between an ISP and a CMTS is not disclosed in Fijolek, and claim 1 is not anticipated by Fijolek. Accordingly, withdrawal of the rejection is respectfully requested.

The discussion above with respect to claim 1 applies to claim 10, as claim 1 is representative of the similar subject matter claimed in claim 10. Accordingly, withdrawal of the rejection is respectfully requested.

**E. The Claims are not Obvious over the cited references**

Applicant respectfully submits that the subject matter of the claims patentably distinguish over the cited references. Under MPEP § 2142, for an examiner to establish a *prima facie* case of obviousness, "three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure." If any of these three criteria are not met, the Examiner has not met the burden of establishing a *prima facie* case of obviousness, and the rejection should be withdrawn.

Furthermore, each dependent claim includes all of the limitations of the independent claim from which it depends. If an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is non-obvious. MPEP §2143.03, citing In re Fine, 837 F.2d 1071 (Fed. Cir. 1988). Applicant respectfully submits that the burden of establishing a *prima facie* case of obviousness has not been met.

**F. Claims are not obvious over the cited references**

The claims analyzed above are the independent claims and they patentably distinguish over the reference as discussed above. They do not stand rejected as obvious. All of the other rejected claims depend from these independent claims and therefore contain all of the limitations contained in their respective base claims. Accordingly, under MPEP §§2142 §2143.03, these dependent claims also patentably distinguish over the references and withdrawal of the rejection is respectfully requested. However, Examiner's concerns are addressed with respect to the individual obviousness rejections of the dependent claims.

With respect to the rejection of claims 2, 4, 11 and 13, the claims generally claim transferring a new subscriber from one cable data system link to another, when the available bandwidth on the present link is less than what is being requested by the

subscriber attempting to establish a session. Examiner correctly states that Fijolek is silent regarding this limitation. However, Examiner states that Vogel discloses this limitation.

Examiner cites the section of Vogel that describes the process of UCC, thus rendering the limitation of these claims obvious. In doing so, Examiner equates the changing of upstream communication channel being used between a cable modem and the CMTS with the changing of the physical link between the ISP and CMTS that will carry a requesting subscriber's session.

As discussed above, the claims expressly relate to the links between a plurality of ISPs and a CMTS. These links are physical links that have a physical bandwidth maximum capacity. In contrast, not only do the channels referred to in Vogel carry traffic between a cable modem and the CMTS, but channels are typically a virtual entity rather than physical, inasmuch as a single physical link between a cable modem and a CMTS typically carries multiple 6 MHz channels in a DOCSIS communication system. Thus, the claim limitations are not found in either of the references.

Furthermore, there is no suggestion or motivation found in the references to combine the reference teachings to arrive at the claimed subject matter. Just because Vogel discusses changing channels in the upstream direction when one channel provides less than optimum traffic-carrying characteristics does not imply or infer the changing of a physical link between an ISP and a CMTS to prevent overloading of a given link. Again, not only are the links over which a subscriber's traffic is carried as claimed located at a different network location than are the channels being changed as discussed in Vogel, the process and objective is different. In Vogel, channels are changed in order to optimize load balancing in the upstream direction. This occurs dynamically as traffic is being transported. In the present application, the links that connect a given ISP to the CMTS that connects to the subscribers are selected for a given subscriber's session based on the bandwidth availability of a given link and the other links that also connect that same ISP to the CMTS. This determination is made before the session is established, and does not change until the subscriber logs off and the session ends.

Moreover, there is not a likelihood of success in combining the reference teachings as cited by Examiner because, for one reason, the changing of links before a session is established as expressly claimed in claim 4 could not occur if changes were to be also made after establishment of a session. In addition, dynamically changing the links between an ISP and the CMTS could prevent the claimed invention from operating efficiently, or at all. This is because if the links over which a particular session are carried are continuously subject to being changed, an accurate determination of what the traffic loading is on other links could not occur because as soon as the determination and decision are made to change, the loading of the other links, as well as the current link, are likely to have changed. Thus, the link over which a particular traffic session is carried would be constantly changing as the system sought the optimum traffic balance among the plurality of links. Accordingly, claims 2, 4, 11 and 13 are not obvious over Fijolek in view of Vogel, notwithstanding that the base claims from which these dependent claim depend were not rejected as being obvious. Withdrawal of the rejection is respectfully requested.

With respect to claim 3, Examiner rejected the claim as also being obvious over Fijolek in view of Vogel. To clarify the claim, claim 3 has been amended to claim

randomly transferring to a different link when the available bandwidth on the current link is less than or equal to the requested amount. Neither Fijolek nor Vogel disclose the claimed features. Examiner correctly observes that Fijolek is silent on randomly transferring a subscriber's traffic flow from one system link to another. However, Examiner concludes that is would be obvious to randomly transfer a subscriber to a different channel when the current channel degrades because degradation of a channel is random. Further, Examiner bolsters this conclusion with the statement that switching to different channels based on randomness would provide dynamic load balancing.

As discussed above, dynamic changing of links is not claimed. Available bandwidth for a given link is determined before access to that link is provided. After a traffic flow is established on a given link, that flow is not transferred to a different link. Randomly transferring a traffic flow that is still in the set-up stage from one link to another when the present link cannot accommodate the requested amount of bandwidth is one embodiment of a method for preventing oversubscribing of the link. By randomly changing to another link rather than evaluating the other links that may be available first, a probabilistic assumption is made that a different link will have more available bandwidth. While this may not turn out to be the case, reduced set-up time may be the result when this method is employed at typically low usage times of the day or night, thus providing the requesting subscriber with reduced connectivity wait times. Withdrawal of the rejection is respectfully requested.

Claims 5 and 14 are rejected as being unpatentable over Fijolek in view of Allen. However, in reference to the analysis above, not only are not all of the elements of the claims found in the references, either alone or in combination, but the references teach away from the claimed limitations. As disclosed in the present application, ". . . CAC principles from ATM networks [are] applied to traffic control within a CMTS" to control traffic loading on Ethernet links. Page 5, lines 16-18. Thus, the claimed elements may use CAC-like algorithms, whereas the reference expressly teaches that CAC procedures are not used, as discussed above in the summary of Allen.

Furthermore, notwithstanding that Allen teaches away from the claimed elements, the passage cited by Examiner pertains to bandwidth that is not influenced by the limitations of the medium over which traffic is being carried. The passage in Allen gives a formula that is used to allow a user to establish a session, even if available bandwidth is not available. Formula 23, shown at col. 23, line 33, subtracts the sum of minimum flow rates for multiple sessions from a server's maximum capacity. This makes sense since the Allen specification relates to "bandwidth allocation for delivery of stored digital content from at least one server device to at least one client device . . . ." Abstract. Thus, the result when Formula 23 is evaluated clearly does not vary based on the amount of bandwidth that is available on a requested system link. Therefore, the references do not disclose the elements in the claim, nor do they teach or suggest the claimed features. Accordingly, the claims patentably distinguish over the references, and withdrawal of the rejection is respectfully requested.

Claims 6, 7, 15 and 16 stand rejected as being unpatentable over Fijolek in view of Allen and further in view of Yao. Examiner correctly states that Fijolek and Allen do not disclose the losing of packets when a channel is oversubscribed. It will be appreciated that in the context of the present application, the operative term is 'link', not channel.

Regarding Examiner's statement, Applicant traverses the assertion that Yao teaches the claimed limitations. The claims have been amended to more clearly point out the patentable features, although original claims 6, 7, 15 and 16 stand on their own without amendment. Accordingly, the amendment does not change the scope of these claims. However, this amendment of these claims makes it clear that when packets are lost when a link is oversubscribed, this losing of packets does not occur naturally, as is the case in Yao, col. 3, lines 55-63, but as the result of predetermined and controlled operation by the CMTS. Support for this is found in the specification at page 10, line 21 – page 11, line 3. Thus, rather than merely describing the phenomenon of packets that are inadvertently lost as a result of oversubscribing a channel as in Yao, the claims claim intentional losing, or dropping, of packets, as determined by an algorithm-controlled operation of the CMTS. Accordingly, the elements of the claim are not found in the references, and thus the claims are not obvious over the combined references. Withdrawal of the references is respectfully requested.

Claims 6, 8, 15 and 17 stand rejected as obvious over Fijolek in view of Allen further in view of Selinger. Examiner asserts that priority ordered queues result in subscribers having a higher level of service having fewer lost packets. Examiner cites Col. 1, lines 49-63 for this proposition. However, the cited passage discusses that traffic corresponding to a user having lower levels of service may incur longer delays in reaching a destination than those of a user having a high level of service. There is nothing in the reference that discusses loosing packets. While it may be true that for certain types of traffic, for example voice, delayed traffic typically results in lost packets, this is an inevitable consequence of the type of traffic involved. However, the claims refer to a method that intentionally drops, or loses, packets so that overall system traffic loading is as balanced as possible. The cited reference may intentionally delay certain traffic based on the subscribed-to level of service, but there is no intentional dropping of packets referred to in the references, either expressly or impliedly. Thus, all the elements of the claims are not found in the references, nor is there a reasonable suggestion that the references in combination would result in the claimed subject matter. Accordingly, the claims patentably distinguish over the references, and withdrawal of the rejection is respectfully requested.

Claims 9 and 18 stand rejected over Fijolek, although Examiner states that Fijolek is silent on granting service to a requesting service reserved for a second ISP. Examiner states that it is known in the art to grant service (Applicant assumes Examiner means additional service over and above what a given MSO dedicates for a given ISP) so that a user of another ISP can obtain service from its associated ISP, to the exclusion of the ISP to which the reallocated service has been previously contractually allotted. The use of the concept of contractually obligated service, *i.e.*, bandwidth, is used here to illustrate that an MSO provides bandwidth to multiple ISPs, and that the proportional amount of total bandwidth capacity that is allocated to a given ISP by an MSO is typically determined by how much bandwidth an ISP contracts for. This is not a limitation (being contractually determined) that Applicant is attempting to read into the claims, but is given merely for illustration purposes.

Examiner has provided no support for the assertion that bandwidth that has been rightfully allocated to an ISP is diverted for use by a subscriber of another ISP other than

to conclusionally state that it would be obvious. Applicant respectfully request that Examiner provide a basis for this conclusion, or withdraw the rejection.

**SUMMARY**

For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any informalities that can be corrected by an Examiner's amendment please contact the undersigned at the mailing address, telephone, facsimile number, or e-mail address indicated below.

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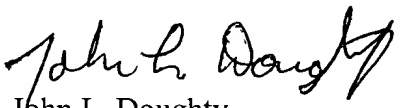

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